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ABSTRACT

This study was designed to examine social presence, to determine how it relates to online interaction, and to provide an operational definition. Participants were students in a graduate level course on the Internet for teachers at Arizona State University. By examining the learner's perception of social presence in three CMC (Computer Mediated Communication) systems (i.e., e-mail, bulletin board, and real-time chat), the following questions were addressed: (1) Is there a relationship between social presence and online interaction? (2) Do issues of privacy influence online social interaction? (3) Do social relationships affect online interaction? (4) Does task orientation impact online interaction? (5) How does online communication literacy impact interaction on CMC? and (6) Does the use of CMC intensify social interaction among online learners? It was concluded that three dimensions of social presence (i.e., social context, online communication, and interactivity) emerged, and the privacy factor correlated to the social presence theory. (Contains 27 references.) (MES)

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Abstract: Social presence is one of the most critical factors in technology-based learning. To increase the level of interaction, the degree of social presence must be increased. Social presence was defined as the degree of person-to-person awareness in previous studies. This does not provide a clear definition of social presence. This study was designed to redefine the social learning theory for the online learning environment. Three dimensions of social presence and the privacy factor were examined in this study to redefine the social presence theory. It was concluded that three dimensions of social presence, social context, online communication and interactivity, emerged and the privacy factor correlated to the social presence theory.

Introduction

The importance of examining social factors that impact communication and learning in telecommunications-based systems has been emphasized in recent studies (Feenberg, 1989; Hackman & Walker, 1990; Lea, 1992; Sanders & Wiseman, 1990; Walther, 1992, 1995, 1996). Virtual classrooms with multicultural students are pervasive. McIsaac and Gunawardena (1996) have suggested that future research should explore the relationship between media and the socio-cultural construction of knowledge, and examine the cultural effects of technology and courseware transfer in distance education. Social presence is the degree of person-to-person awareness, which occurs in the computer environment. Social presence, the most important concept in social context, is an important key to understanding person-to-person telecommunication (Short, Williams, & Christie, 1976). Recent studies (Dillon & Walsh, 1992; Rice, 1984, 1993; Spears & Lea, 1992) have emphasized that social presence possesses potential for future study. Gunawardena (1995) argues that social presence is necessary to enhance and improve effective instruction in both traditional and technology-based classrooms. When the level of social presence is low, interaction is also low (Garramone, Harris, & Anderson, 1986). The lack of social presence will lead to a high level of frustration, an attitude critical of the instructor's effectiveness, and a lower level of affective learning (Rifkind, 1992).

Most text-based users transfer their traditional written style to the computer-mediated communication (CMC) environment without considering the receiver's local social context and/or the characteristics of CMC systems. The degree of social presence has not been considered in instructional design. Two groups of researchers (Connolly, Jessup, & Valacich, 1990; Hiltz, Johnson, & Turoff, 1986) concluded that CMC was unable to provide social context cues and was, therefore, considered to possess limited social presence because it was perceived as an impersonal medium (Walther & Burgoon, 1992). For instance, e-mail is considered to be casual written conversation, unlike traditional correspondence. CMC users often compose e-mail in a very formal written style, such as "Dear Mr. Tu," "Sincerely," etc.; some users are unable to apply "emoticons" to express non-verbal cues, producing an impersonal feeling; and, others resort to using all capital letters to express emphasis, which is considered as "shouting" by the receiver. These examples

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demonstrate the problems of delivering low social presence, or an inappropriate degree of social presence, online.

The social presence theory was not originally designed to explain CMC; in fact, it was initially studied in face-to-face, audio and closed-circuit television encounters. Unlike traditional media, CMC provides very different characteristics, such as multiple identities, anonymity, etc. What is the social presence theory for CMC systems? Is it the same as or different from the original social presence theory that was studied in face-to-face, closed-circuit television and audio conferencing formats? If it is different, what is the difference? How will social presence affect online learning? How will the online learner perceive and respond to this new medium as a communication tool? To provide discipline for the instructional design of distance education, these questions must be examined and answered.

The current CMC application of social presence has not been clearly defined (Rafaeli, 1988; Svenning & Ruchinskas, 1984; Walther, 1992). The universal application of CMC as an educational communication tool requires that social presence be redefined. A clear understanding of social presence is necessary to direct research and to provide practitioners with clear guidelines for instructional design for distance education.

Literature Review

Summary of Social Presence

Recent studies have shown that social presence is a significant factor in improving instructional effectiveness; therefore, it is one of the most significant factors in distance education. Hackman and Walker (1990) investigated the effects of conveyance system design and social presence, in the form of teacher immediacy behavior on perceived student learning and satisfaction in the televised classroom. They conclude that system design and teacher immediacy behavior strongly impact student learning and satisfaction. Gunawardena and Zittle (1997) report similar findings in a CMC system. Social presence is a strong predictor of satisfaction within a CMC environment. Also, it is considered to be an element of interpersonal communication in an online learning environment. Perse, Burton, Kovner, Lears, & Sen (1992) studied college students' utilization of e-mail, and concluded that students used CMC more when they felt that e-mail conveyed more interpersonal presence.

The user judges the degree of social presence (Perse et al., 1992; Walther, 1992). Lack of non-verbal cues in CMC causes an impersonal feeling, doubted to be inherent to the system (Walther & Burgoon, 1992; Walther, 1996). Online users have perceived CMC as a high social presence medium (Gunawardena, 1995; Gunawardena & Zittle, 1997; Perse et al., 1992). Social presence can be cultured by teleconference users and leaders or encouraged by initial learning sessions (Johansen, Vallee, & Spangler, 1988). Gunawardena (1995) suggested that by successfully "inculturating" themselves within CMC, learners promote their levels of social presence, and allow themselves an opportunity for greater participation. In spite of the characteristics of the medium, students' perceptions of the social and human qualities of CMC will depend on the social presence created by the instructors/moderators and the online community (Gunawardena, 1995; Gunawardena & Zittle, 1997). Therefore the instructor or the moderator must utilize their interaction skills and techniques, rather than those of the medium; this will enhance students' perceptions of social presence on CMC.

Purpose of the Study

The social presence theory is not clearly defined for CMC because low levels, and inappropriate levels, of social presence are usually found in the CMC environment. The purpose of this study is to examine social presence, determine how it relates to online interaction; and, to provide an operational definition.

Research Questions

By examining the learner's perception of social presence in three CMC systems, e-mail, bulletin board, and real-time chat, the following questions are answered:

1. Is there a relationship between social presence and online interaction?
2. Do issues of privacy influence online social interaction?
3. Do social relationships affect online interaction?
4. Does task orientation impact online interaction?
5. How does online communication literacy impact interaction on CMC?
6. Does the use of CMC intensify social interaction among online learners?

Method

Both quantitative and qualitative methods were used to gain a better understanding of the student's perception of social presence for redefinition of the social presence theory for CMC. Fifty students enrolled in EMC 598 Internet for Teachers, a graduate level course offered by the College of Education at Arizona State University.

Participant observation method with a dramaturgy perspective was used to understand the issues of privacy, social relationships, task orientation, online communication, and social interaction on CMC from the student's point of view.

Quantitative methods was used to examine the relationship between social presence and online interaction; and, whether social context, online communication, and interactivity, the three dimensions proposed in this study, and privacy, will significantly contribute to the degree of social presence.

Fifty participants were asked to answer the Social Presence and Privacy Questionnaire (Tu, DiGangi, Jamnasch, & Yu, in preparation). This questionnaire, evaluating e-mail, bulletin board, and real-time chat, contains seventeen social presence items, and thirteen privacy items each with a 5-point Likert scale, and twelve demographic identifiers. Bartlett's test of sphericity (Bartlett, 1973) was applied to increase the validity because of the small number of participants. Confirmatory factor analysis was utilized to examine the three dimensions of social presence.

Triangulation

Triangulation was not a validation process in this study. Rather, it was considered a means to a better understanding about the perception of social presence. Triangulation allows the consideration of analyses from a novel standpoint, additional data are available for study, but, further, these additional data may alter the researcher's perception of the initial data (Bloor, 1997).

Results

Quantitative Results

A confirmatory factor analysis was performed on 30 questionnaire items on social presence, risky behaviors, and computer privacy. Five factors analyses from a previous study (Tu, 1999) were computed. These five factors accounted for 76.7 percent of the variance. The five factors were extracted using varimax rotation. With a cutoff of .45, three items were removed from the loading. These five factors were social context, online communication, interactivity, system privacy, and feeling of privacy yielding a

Cronbach's coefficient alpha of 0.82, 0.88, 0.73, 0.75, and 0.71, respectively. Correlations were computed between social presence and privacy, and among five factors. The result was r = 0.311 with significance at the 0.05 level.

A Pearson correlation between mean social presence rating and frequency produced a correlation of r= -0.004, and this correlation was not significant at $\alpha = 0.05$ ($r = 41$) = -0.004, $p > .05$). It was concluded that the level of social presence did not vary with frequency.

Qualitative Results

Social context dimension included the recipient, task, social relationship, social skills, message topics, locations, psychological issues, and flaming messages. The level of social presence decreased when a group member typed too fast, was too talkative, didn't listen to others, and dominated the conversation. Those participants have a negative impact on other's participation because of their communication behavior. One's fast typing could have a negative impact on the other's level of social presence because the other could not keep up with the typing speed and could easily generate pressure on the slower typist. This situation occurred when one talked a lot, many of these communications were nonsensical.

Online communication is the exchange of thoughts, messages, or information that occurs online. Online immediacy includes expressiveness, stimulation, and the conveying of feelings and emotions through online language. The language used in an online communication expressed meanings and thoughts with difficulty and was easily misunderstood. Many messages were perceived and interpreted as not stimulating while some were perceived as stimulating. To convey feeling and emoticons, emoticons and paralanguage were used to compensate for the absence of non-verbal cues. Female students tended to use emoticons and paralanguage more frequently to convey their feeling and emotions. Both genders agreed that the use of emoticons and paralanguage made the message more stimulating, sensitive, and expressive.

In the interactivity dimension, immediate response, communication style, multi-thread communication, and physical distance between users contributed to the level of social presence. Personal communication style had a great impact on the level of social presence, such as formal/informal style, short/long messages, stylistic communication style, task-oriented style, use of humor, inviting tone, slang, and using of you versus we. E-mail communication has been considered to be a casual written communication. However, many e-mail messages are formal communications that increased the psychological distance. Long messages were identified as inappropriate for e-mail and real time chat.

Private/public issues on CMC have an impact on the level of social presence. When students perceived a medium as more public, the level of social presence is lower, and vice versa on a medium that is perceived as more private. Students perceived e-mail communication as more private than bulletin board while real time chat varied with the numbers of participants. It was found that very private and personal e-mail messages were sent to multiple recipients and group discussion folders without notifying the original senders. Although e-mail was conducted mostly as a one-to-one communication, whether the recipient read the message or not is unknown. Students could share an e-mail account with their spouse, family members, or others. E-mail messages with a long recipient list that preceded the body of the message were perceived as impolite because e-mail is supposed to be a more personal communication medium. The long recipient list made the individual recipient less important. Although both bulletin board and real time chat can be considered as one-to-many communications, bulletin board is perceived as a more public communication because the bulletin board messages were available online most of the time, unlike real time chat messages which disappeared at the end of the chat, an erroneous impression. However, students considered private real time chat could be public as well because one could just observe and not participate. This could have a negative impact on the chat participants.

References

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Bartlett, M. S. (1973). Tests of significance in factor analysis. British Journal of Psychology, Statistical Section, 3(2), 77-85.

Bloor, M. (1997). Techniques of validation in qualitative research: a critical commentary. In G. Miller, & R. Dingwall (Eds.), Context and method in qualitative research. (Pp. 37-50). Thousand Oaks, CA: Sage.

Connolly, T., Jessup, L. M., & Valacich, J. S. (1990). Effects of anonymity and evaluative tone on idea generation in computer-mediated groups. Management Science, 36, 97-120.

Dillon, C. L., & Walsh, S. M. (1992). Faculty: The neglected resource in distance education. The American Journal of Distance Education, 6(3), 5-21.

Feenberg, A. (1989). The written world: On the theory and practice of computer conferencing. In R. Mason, & A. Kaye (Eds.), Mindweave: Communication, computers, and distance education. (Pp. 22-39). New York: Pergamon Press.

Garramone, G. M., Harris, A. C., & Anderson, R. (1986). Uses of political computer bulletin boards. Journal of Broadcasting & Electronic Media, 30(3), 325-339.

Gunawardena, C. N. (1995). Social presence theory and implications for interaction collaborative learning in computer conferences. International Journal of Educational Telecommunications, 1(2/3), 147-166.

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. The American Journal of Distance Education, 11(3), 8-26.

Hackman, M. Z., & Walker, K. B. (1990). Instructional communication in the televised classroom: the effects of system design and teacher immediacy on student learning and satisfaction. Communication Education, 39(3), 196-206.

Hiltz, S. R., Johnson, K., & Turoff, M. (1986). Experiments in groups decision making: Communication process and outcome in face-to-face versus computerized conference. Human Communication Research, 13(2), 225-252.

Johansen, R., Valee, J., & Spangler, K. (1988). Teleconferencing: Electronic group communication. In R. S. Cathcart, & L. A. Samovar (Eds.), Small group communication: A reader. (5th ed., pp. 140-154). Menlo Park, CA: Institute for the Future.

Lea, M. (1992). Contexts of computer-mediated communication. New York: Harvester Wheatsheaf.

McIsaac, M. S., & Gunawardena, C. N. (1996). Distance Education. In D. Jonassen (Ed.), Handbook for research on educational communications and technology. (Pp. 403-437). New York: Scholastic Press.

Perse, E. L., Burton, P., Kovner, E., Learx, M. E., & Sen, R. J. (1992). Predicting computer-mediated communication in a college class. Communication Research Reports, 9(2), 161-170.

Rafaeli, S. (1988). Interactivity: From new media to communication. In R. P. Hawkins, J. M. Wiemann, & S. Pingree (Eds.), Advancing communication science: Merging mass and interpersonal process (pp. 110-134). Newbury Park, CA: Sage.

BEST COPY AVAILABLE

Rice, R. E. (1993). Media appropriateness: Using social presence theory to compare traditional and new organizational media. Human Communication Research, 19(4), 451-484.

Rice, R. E. (1984). Mediated group communication. In R. E. Rice & Associates (Ed.), The new media: Communication, research, and technology. (Pp. 129-156). Beverly Hill, CA: Sage.

Rifkind, L. J. (1992). Immediacy as a predictor of teacher effectiveness in the instructional television classroom. Journal of Interactive Television, 1(1), 31-38.

Sanders, J. A., & Wiseman, R. L. (1990). The effects of verbal and nonverbal teacher immediacy on perceived cognitive, affective, and behavioral learning in the multicultural classroom. Communication Education, 39(4), 341-352.

Short, J., Williams, E., & Christie, B. (1976). The social psychology of telecommunications. London: John Wiley & Sons, Ltd.

Spears, R., & Lea, M. (1992). Social influence and the influence of the 'social' in computer-mediated communication. In M. Lea (Ed.), Contexts of computer-mediated communication. (Pp. 30-65). New York: Harvester Wheatsheaf.

Svenning, L. L., & Ruchinskas, J. E. (1984). Organizational teleconferencing. In R. E. & A. Rice (Eds.), The new media: Communication, research, and technology. (Pp. 217-248). Beverly Hills, CA: Sage.

Tu, C. H., DiGangi, S., Jannasch, A., & Yu, A. (in preparation). Validation of Social Presence and Privacy Instrument. Eruditio Project Report. Tempe, AZ, Arizona State University.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. Communication Research, 23(1), 3-43.

Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. Communication Research, 19(1), 52-90.

Walther, J. B. (1995). Relational aspects of computer-mediated communication: Experimental observations over time. Organization Science, 6(2), 186-203.

Walther, J. B., & Burgoon, J. K. (1992). Relational communication in computer-mediated interaction. Human Communication Research, 19, 50-88.